

ABSTRACT

A DC-DC converter prevents reverse current from flowing through the inductor, suppresses ringing noise in the low-load state, lowers the power consumption, and increases the conversion efficiency. In the DC-DC converter composed of switches S1-S4 and inductor L1, in switching controller 10, output voltage V_{out} and current I_L in inductor L1 are detected, and in accordance with the detection result, switches S1-S4 are turned on/off so that output voltage V_{out} is held at the desired level; also, when the current in inductor L1 is nearly zero, switches S2 and S3 are turned on, and switch S4 on the output side of inductor L1 is turned off, so that reverse current flow through the inductor can be prevented, and the generation of ringing noise can be suppressed.